

**Design and Development of a web application named InternBD:
Empowering Careers**

BY

**MD Saidul Islam Abir
ID: 201-15-13643**

FINAL YEAR DESIGN PROJECT REPORT

This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

Mr. Mohammad Monirul Islam
Assistant Professor
Department of Computer Science and Engineering
Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project titled “Design and Development of a web application named InternBD: Empowering Careers”, submitted by MD Saldul Islam Abir (201-15-13643) to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 14-07-2024.

BOARD OF EXAMINERS

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Board Chairman

Professor

Department of CSE

Faculty of Science & Information Technology

Daffodil International University



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Department of CSE

Faculty of Science & Information Technology

Daffodil International University



Mr. Amir Sohel (ARS)

Internal Examiner 2

Sr. Lecturer

Department of CSE

Faculty of Science & Information Technology

Daffodil International University



Dr. Shamim H Ripon (DSR)

External Examiner

Professor

Department of Computer Science and Engineering

East West University

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I hereby declare that this project has been done by me under the supervision of **Mr. Mohammad Monirul Islam, Assistant Professor, Department of Computer Science and Engineering, Daffodil International University**. I also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

Supervised by:


Mr. Mohammad Monirul Islam
Assistant Professor
Department of CSE
Daffodil International University

Submitted by:

MD Saidul Islam Abir
ID: 201-15-13643
Department of CSE
Daffodil International University

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Lastly, I must respectfully thank our parents for their unwavering patience and support.

ABSTRACT

A cutting-edge web-based platform called InternBD aims to completely transform Bangladesh's internship market. InternBD, which is committed to helping young professionals, graduates, and students advance professionally, acts as a portal to chances for life-changing internships. Our platform aims to streamline the internship process and empower young people throughout Bangladesh by facilitating smooth connections between brilliant individuals and industry leaders. With the goal of being Bangladesh's leading provider of transformative internships, InternBD is dedicated to making worthwhile real-world experiences easily accessible. Our goal is to simplify internship programs, develop a trained workforce, and advance national development by forming strategic alliances and providing individualized assistance. InternBD provides a wide range of possibilities designed to fulfill the educational and career growth goals of each individual, whether they are looking for academic, professional, virtual, or apprenticeship alternatives.

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CHAPTER 1

Introduction

1.1 What is Design and Development of a web application named InternBD: Empowering Careers?

Internships are essential for bridging the gap between academic knowledge and real-world industrial experience in a job market that is becoming more and more competitive. Having realized how desperately Bangladesh needed accessible and impactful internship opportunities, InternBD has emerged as a specialized online platform that has the potential to completely change the internship scene. While undergraduate students are perusing their honor's degree they seek for intern jobs to have some experience in job sector. Some universities want their students to get internship for their final year defense which is mandatory and many students don't find suitable jobs for their internships. That's why InternBD is here to provide students a suitable job where they can find any kind of job they're looking for. Besides, it's easy for a company to get their tiny jobs done by an intern with a little bit of cost without hiring a professional. Through streamlining the internship application process and cultivating strategic alliances, InternBD seeks to develop a workforce with the necessary skills to propel the country forward. Our goal is to enhance the internship experience by connecting candidates with industry professionals and provide individualized support.

1.2 Motivation

The core conviction behind InternBD is the transforming potential of internships for Bangladeshi students and young professionals. As many companies need interns for doing some of their jobs that shouldn't be handled by seniors, those jobs are pretty easy to be done by interns with a small amount of cost and also new graduates need to have some experience in job sector, that's why internBD is here to help them. The goal of InternBD is to build on this success by tailoring its services to the unique requirements of Bangladesh's young. Our drive comes from a desire to improve and simplify the internship process, making it easier to use and more advantageous for participating companies as well as interns. InternBD aims to establish itself as the go-to resource

in Bangladesh for finding and obtaining relevant internship opportunities that complement academic objectives and professional aspirations by utilizing technology and smart relationships.

1.3 Objectives

- **Promote Accessible Internship Opportunities:** Similar to Intershala, InternBD seeks to make internships more widely available throughout Bangladesh, making it possible for young professionals and students from a variety of backgrounds to obtain worthwhile and pertinent internships.
- **Improve Career Development:** Professional internships, virtual internships, and apprenticeships are just a few of the internship choices that InternBD provides in an effort to improve career development. The aforementioned chances will facilitate interns' acquisition of pragmatic skills and industrial exposure, which are vital for their career advancement.
- **Form Strategic Alliances:** InternBD aims to form strategic alliances with top businesses and organizations in a range of industries, emulating the Intershala model. These collaborations will guarantee that interns receive mentorship and advice from professionals in the field in addition to increasing the number of internship opportunities.
- **Offer Complete assistance:** Throughout their internship, InternBD is dedicated to offering interns complete assistance. This includes tools for creating resumes, interviewing, and attending workshops for professional development; they are comparable to the services provided by Intershala.
- **Encourage Skill Development:** InternBD seeks to provide interns with the skills they need to be successful in their chosen areas by emphasizing learning outcomes and skill development. This is consistent with Intershala's focus on experiential learning and practical application.
- **Intended for Bangladeshi's:** This project is only for Bangladeshi students. They can do their internship jobs and also they will have the opportunities to be permanent.

These goals demonstrate InternBD's desire to follow Intershala's successful model while especially addressing the internship environment in Bangladesh. Every goal is to improve the internship experience and help young Bangladeshis advance their careers.

1.4 Expected Outcomes

- **Improved Access to High-Quality Internships:** InternBD predicts that, in Bangladesh, there will be more possibilities for high-quality internships available, much as Intershala has in India. InternBD seeks to increase the exposure of students and young professionals to a variety of businesses and jobs by providing them with a wide range of internship alternatives.
- **Improved professional preparedness:** Participants may anticipate an increase in their employability and professional preparedness by taking part in internships organized by InternBD. Similar to Intershala, InternBD aims to provide interns with the real-world experience, business acumen, and professional connections necessary to succeed in their chosen areas.
- **Beneficial Effects on Industry and Economy:** InternBD seeks to benefit Bangladesh's industry and economy by developing a skilled labor force via well-timed internship assignments. Talent that satisfies industrial expectations and advances national development objectives is one aspect of this.
- **Long-term Professional Networks:** InternBD expects that participants' internship experiences will help them build long-term professional networks. These relationships may be crucial for future professional development and employment prospects, much as Intershala's results.

These anticipated results highlight InternBD's objective to imitate the fruitful outcomes enabled by Intershala while concentrating on the particular context and objectives inside the internship ecosystem of Bangladesh. Every result showcases the platform's dedication to improving professional growth and career prospects for young people from Bangladesh.

1.5 Project Management and Finance

Project Management

Timetable & Milestones:

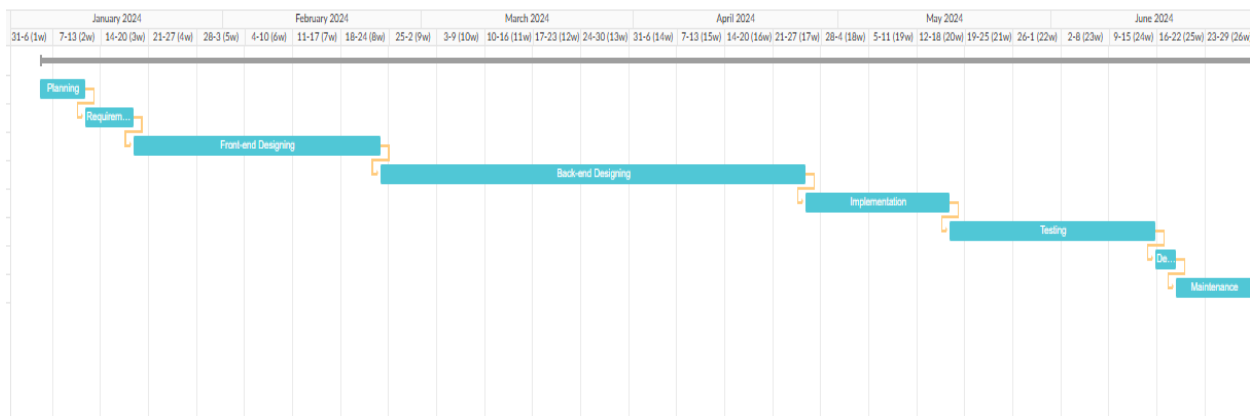
- **Planning:** The project started with a week-long, in-depth planning process. The project team established the goals, deliverables, and scope of InternBD during this time. A high-

level project timetable was prepared along with the identification of key stakeholders. Setting a strong foundation and making sure everyone in the team was on the same page with the project's objectives were the main aims of this first planning stage.

- **Requirements Gathering:** After the brainstorming stage, the group set out to collect specific needs during a 10-day period. To ascertain their requirements and expectations, this entailed interviewing prospective users, employers, and academic institutions. In order to find best practices and areas that InternBD might fill, the team also looked over the platforms currently in use for internships. The requirements that were acquired in this phase were prioritized and recorded to direct the design process that followed.
- **Design:** Over the course of the roughly 100-day design process, the team created comprehensive blueprints for the InternBD platform. Database schemas, user interface (UI) designs, and wireframes were all created at this phase. The completion of the system architecture design and the acceptance of UI prototypes were important design benchmarks. The design stage made sure the platform would be safe, scalable, and easy to use.
- **Implementation:** The InternBD implementation took around three weeks to complete. Developers converted the designs into a workable web platform at this step. Coding the front-end and back-end elements, connecting the database, and making sure every feature operated as a unit were all part of the development process. To ensure quality and quickly resolve any concerns, integration testing and code reviews were carried out on a regular basis.
- **Testing:** The approximately 30-day-long testing process was essential to guaranteeing the dependability and usefulness of the platform. A range of testing approaches were utilized, including as user acceptance testing (UAT), integration testing, and unit testing. The team collaborated closely with a set of beta testers to find and fix errors, enhance functionality, and optimize user experience. Tester feedback was crucial in helping to make the necessary changes prior to launch.
- **Deployment:** In four days, InternBD's deployment was finished. During this stage, the application had to be moved from the development environment to the production environment and all required services had to be configured. To make sure the platform was completely functional and prepared for public usage, the team carried out last inspections.

In order to track early performance and handle any unforeseen problems, a soft launch was carried out.

- The maintenance phase started after deployment and is still going strong. Regular updates are made throughout this period to fix security flaws, introduce new features, and enhance current functionality in response to user input. To guarantee seamless functioning, the maintenance crew keeps a close eye on the platform and responds quickly to any technological problems that may occur. In order to keep InternBD useful and relevant for its users, maintenance tasks also include ongoing user assistance and interaction.



Risk management: To guarantee the success of a project, risks must be identified and mitigated.

Important hazards consist of:

- Technical difficulties are resolved by frequent testing and quality control.
- Resource Restrictions: Handled with careful planning and distribution of resources.
- Market Adoption: Reduced via alliances with academic institutions and business executives, as well as effective marketing.

Quality Assurance: It is crucial to make sure the platform satisfies strict requirements for quality.

Among the methods for quality assurance are:

- Testing on a regular basis: carrying out system, integration, and unit tests.
- User Input: Applying beta users' input to enhance the platform.
- Performance Monitoring: Tracking platform performance over time and quickly resolving problems.

Finance

Planning and executing a project require a thorough budget. As I have completed this project on

my own for my final year defense, I haven't put any money on it except the domain. If I get any chance to prove myself by launching this project, I'll look forward to set a budget on it. Also then I'll be able to spend on resource allocation, cost management, risk management, return on investment, finding strategies, financial reporting etc.

1.6 Report Layout

Creating a comprehensive report layout for "InternBD: Empowering Careers through Transformative Internships in Bangladesh" requires breaking the project down into many sections that show the characteristics, accomplishments, phases of development, and details of the project. Below is a layout outline for the report:

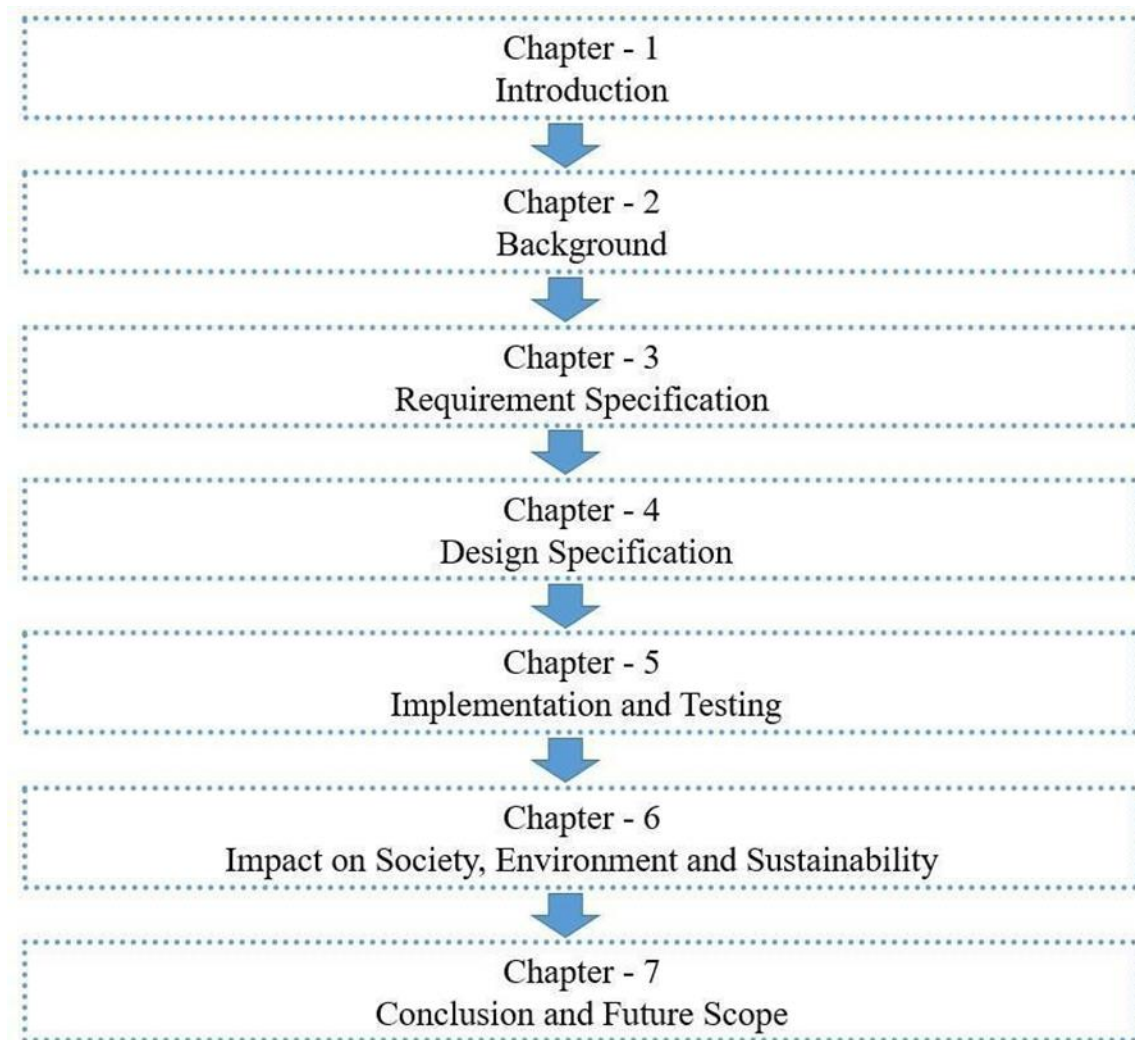


Figure 1.6.1: Report Layout of this Project.

CHAPTER 2

Background

2.1 Terminologies

General Terms

- **Internship:** An internship is a short-term job opportunity that organizations offer to students or young professionals to obtain real-world experience in a particular industry.
- **Platform:** The web-based program or system that allows InternBD to function and match people with internship opportunities.
- **User:** Users include students, graduates, employers, and educational institutions who engage with the InternBD platform.
- **Stakeholders:** People or groups, including students, colleges, businesses, investors, and governmental organizations, who are interested in the operations and success of InternBD.

Platform-Specific Terms

- **Dashboard:** The primary user interface of the InternBD platform, providing users with access to a range of functions and data.
- **Profile:** The area of the user's personal account where they enter and modify their academic, career, and personal information.
- **Internship Listing:** Employers submit open internship positions in the "Internship Listings" area of the platform.
- **Application Tracking Technology (ATS):** InternBD uses this technology to handle and expedite the application process for internships, benefiting companies and candidates alike.
- **Virtual internships:** These are chances for remote internships that let interns work from any place.

Technical Terms

- **Cloud-Based Services:** InternBD hosts its platform and handles data via online services and storage solutions.
- **User Interface (UI):** The visual elements of a platform that users interact with, such buttons, forms, and navigation menus, are referred to as the user interface (UI).
- **User Experience (UX):** The complete user experience with InternBD platform, emphasizing customer happiness and simplicity of use.

- Backend: The portion of the platform that is server-side and handles data processing, storing, and server communication.
- Frontend: Using a web browser, users engage directly with the client-side portion of the platform.
- API (Application Programming Interface): Application Programming Interface, or API, is a collection of tools and protocols that let different software programs talk to one another. InternBD uses APIs to integrate a range of services and features.

Legal and Compliance Terms

- Data privacy: Ensuring adherence to applicable data protection rules while safeguarding users' personal information on the InternBD platform.
- Terms of Service: The written contract that describes the guidelines for using the platform and is signed by InternBD and its users.
- Non-Disclosure Agreement (NDA): A formal arrangement that safeguards private information between InternBD and its partners or staff members.

2.2 Related Work

The mission of InternBD is to transform the internship experience in Bangladesh for professionals, graduates, and students. Examining current platforms and efforts that provide comparable services is essential to comprehending the environment and determining the gaps that InternBD fills. This section looks at a number of well-known internship platforms and their characteristics, emphasizing how InternBD offers special solutions made specifically for the Bangladeshi environment. The mission of InternBD is to transform the internship experience in Bangladesh for professionals, graduates, and students. Examining current platforms and efforts that provide comparable services is essential to comprehending the environment and determining the gaps that InternBD fills. This section looks at a number of well-known internship platforms and their characteristics, emphasizing how InternBD offers special solutions made specifically for the Bangladeshi environment.

1. Internshala (India)

A well-known online resource in India that links students to training and internship opportunities is called Internshala. Some of Internshala's salient qualities are:

- Comprehensive Internship Listings: A large selection of internships in a variety of subjects and places.

- Skill Development: Online courses designed to improve students' employability and skills.
- User-friendly Interface: An easy-to-use platform that streamlines the application and search procedures.

Advantages:

- Large internship database.
- Programs for integrated training.
- Strong trust and brand recognition.

Limitations:

- Primarily targeted at the Indian market, thereby failing to meet the unique demands and difficulties experienced by students from Bangladesh.
- Insufficient assistance for internships abroad.

2. LinkedIn

One worldwide professional networking website, LinkedIn, lists employment openings, including internships. Among LinkedIn's salient characteristics are:

- Building and interacting with a professional network is made possible via professional networking.
- Jobs: A wide selection of career and internship advertisements.
- Endorsements for Skills: Users are able to recommend talents and be recommended by others.

Advantages:

- Broad worldwide reach.
- Networking possibilities with businesses and professions.
- Integration of professional history with user profiles.

Restrictions:

- Not designed with internships in mind.
- May be too much for people who are only seeking for internships.

3. Glassdoor

Glassdoor offers wage data, company ratings, and job advertisements. Important characteristics consist of:

- Company Reviews: A look at firms from the perspectives of both present and past workers.
- Pay Information: Detailed pay information for a range of positions.

- Comprehensive job listings that include internships are available.

Advantages:

- Comprehensive corporate evaluations and insights.
- Pay transparency.
- Wide variety of job postings.

Limitations:

- Primarily aimed at people looking for full-time work.
- Less focus on student opportunities and internships.

4. Handshake (USA)

Handshake is a platform that links employers with college students. Important characteristics consist of:

- University Partnerships: Works with academic institutions to offer internship and employment opportunities to students.
- Personalized employment Suggestions: Customizes employment recommendations according to user profiles.
- Employer Engagement: Enables employers and students to communicate directly.

Advantages:

- Robust integration with the university.
- User experience that is tailored to them.
- Pay attention to internships and entry-level jobs.

Limitations:

- Mostly caters to the US market.
- Might not adequately attend to Bangladeshi pupils' particular requirements.

5. Bdjobs.com (Bangladesh)

One of Bangladesh's top employment boards, bdjobs.com, has a wide range of job postings, including internships. Important characteristics consist of:

- Local Focus: Specifically targeted at the employment market in Bangladesh.
- Numerous sectors are covered by the extensive listing of positions and internships.
- Employer Listings: Enables businesses to list available positions for interns and jobs.

Advantages:

- Strong awareness and presence in the community.
- Extensive job postings in Bangladesh.

Restrictions:

- Internships are not as important as full-time employment.
- Restricted features for training and skill improvement.

2.3 Comparative Analysis

There are many different solutions available in the internship platform industry, each with unique characteristics and targeting different customers. The purpose of this comparison analysis is to find InternBD's advantages and disadvantages in relation to a number of well-known platforms, including Internshala, LinkedIn, Glassdoor, Handshake, and Bdjobs.com.

Comparative Table

Criteria	InternBD	Internshala	LinkedIn	Glassdoor	Handshake	Bdjobs.com
Geographic Focus	Bangladesh (local & global)	India	Global	Global	USA	Bangladesh
Internship Listings	Extensive, diverse fields	Extensive, diverse fields	Extensive, all fields	Comprehensive, all fields	Extensive, diverse fields	Wide range, diverse fields
Skill Development Programs	Integrated training	Integrated training	Limited	None	Integrated training	Limited
User Interface and Experience	User-friendly, intuitive	User-friendly, intuitive	Professional networking	Job-focused	University-integrated	Job-focused
Employer Engagement	Direct interaction, tailored	Direct interaction	Networking	Employer reviews	Direct interaction	Employer listings
Personalized Support	High	Moderate	Low	Low	High	Moderate
Virtual Internship Opportunities	High	Moderate	Moderate	Low	High	Low
Integration with	Strong	Moderate	None	None	Strong	Moderate

Criteria	InternBD	Internshala	LinkedIn	Glassdoor	Handshake	Bdjobs.com
Educational Institutions						

By filling certain gaps in the Bangladeshi internship market, InternBD distinguishes itself. It is in a unique position to assist students from Bangladesh because of its emphasis on both domestic and foreign possibilities, integrated skill development, highly individualized support, and solid connections with educational institutions. When it comes to helping young professionals in Bangladesh build their skills and make significant relationships, InternBD provides a more customized and encouraging experience than other platforms.

2.4 Scope of the Problem

Bangladesh's higher education and professional development systems confront several obstacles, especially when it comes to matching students with worthwhile internship opportunities. Even while skill development and real-world experience are becoming increasingly important, there are still big gaps that make it difficult for students to find internships that fit with their academic and professional goals. The main problems that InternBD seeks to solve are delineated in this section:

- Inadequate Centralized Platform for Internships
- Access to Good Internships Is Limited
- The application process is inefficient.
- Mismatch in Skill and Lack of Preparation
- insufficient cooperation between academia and industry
- Social and Geographical Barriers
- Few Chances for Virtual Internships

The problem's extent draws attention to important obstacles that prevent students from taking advantage of worthwhile internship opportunities in Bangladesh. InternBD seeks to transform the internship scene by tackling these problems with a comprehensive and cutting-edge platform that gives students the resources and chances they require to be successful in their career endeavors.

2.5 Challenges

There have been a number of noteworthy obstacles faced in the creation and execution of InternBD,

a platform intended to transform the internship experience for students in Bangladesh. In order to ensure the platform's success and efficacy, it has been imperative to address these difficulties. This section lists the main obstacles encountered during the project and the methods used to get beyond them.

Key Challenges

- It took a lot of technical know-how and resources to create a platform that was reliable, scalable, and user-friendly. Agile approaches were used by the development team, enabling iterative development and ongoing input. Working together with seasoned advisors and engineers enabled us to get beyond technical roadblocks.
- It is crucial to protect user data's security and privacy, particularly when dealing with private and business data. Strong encryption methods, safe authentication procedures, and frequent security audits were put in place to safeguard user data and increase platform confidence.
- Sustaining the platform's high caliber of internship options was essential to guaranteeing consumers excellent experiences. Strict employer screening procedures as well as ongoing monitoring and assessment of internship posts guaranteed the caliber and applicability of opportunities on InternBD.
- Differentiating InternBD's offers was necessary to compete with well-known internship networks like Internshala, LinkedIn, and regional employment portals. Differentiating itself from rivals, InternBD focuses on the particular requirements of Bangladeshi students and offers tailored support along with integrated skill development programs.

Even though InternBD had several difficulties in its conception and execution, it overcame them with the help of strategic planning, teamwork, and ongoing development. By addressing these issues, the platform has been reinforced and is now a dependable and efficient way to match Bangladeshi students with worthwhile internship opportunities.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

For InternBD, Business Process Modeling (BPM) entails producing a comprehensive visual representation of the workflows and procedures that comprise the platform. This will guarantee that the platform successfully satisfies its goals and assist in identifying inefficiencies and streamlining processes. The business process model is as follows:

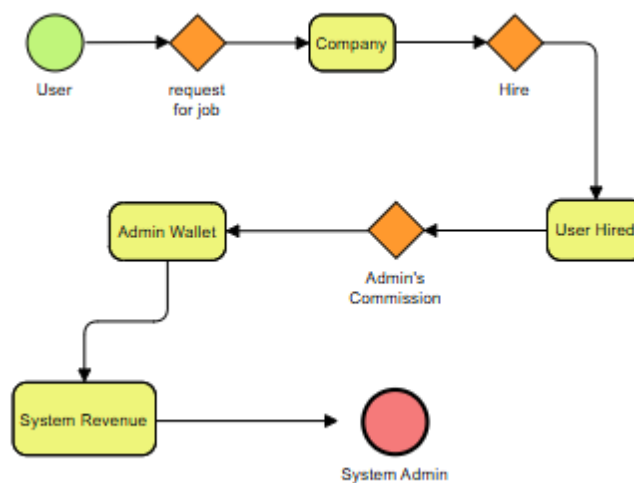


Figure 3.1.1: Business Process Modelling

3.2 Requirement Collection and Analysis

Meticulous requirement gathering and analysis were critical to the development of InternBD as a comprehensive platform for internships. This section explores how the many requirements that influenced the creation and use of InternBD were identified, recorded, and analyzed.

Requirement Collection Process

1. Interviews with stakeholders

- Goal: Communicate with important parties, such as employers, academic institutions, students, and industry professionals, to learn about their requirements and expectations from an internship platform.
- Method: To get quantitative and qualitative information on user preferences, problems

encountered, and wanted features, structured surveys and interviews were conducted.

2. Analysis of Markets

- Goal: Examine current job boards and internship platforms in Bangladesh and throughout the world to find patterns, gaps, and openings.
- Method: To assess features, user experience, and success criteria, local portals and platforms including Internshala, LinkedIn, Glassdoor, and others were studied.

3. Workshops and Focus Groups

- Goal: Lead interactive brainstorming sessions, check assumptions, and prioritize features with representative student, educator, and industry groups.
- Method: Convened workshops and focus groups to explore pain areas, get input in real time, and fine-tune feature needs.

4. Surveys and Loops of Feedback

- Goal: Throughout the development lifecycle, continuously solicit input to make sure that it is in line with changing user expectations and market conditions.
- Method: Used feedback forms on the platform, distributed online surveys, and integrated user input into iterative development cycles.

Analysis of Requirements

1. Classification and Ordering

- Procedure: Divided needs into non-functional (performance, security, and scalability) and functional (features that directly affect user experience) categories.
- Requirements were ranked in order of importance according to their effects on user happiness, strategic alignment with the goal and vision, and viability given the constraints of project budgets and schedules.

2. Evaluation of Feasibility

- Technical viability was evaluated while taking into account the platform design, integration needs, and resource availability.
- Criteria: Made sure all requirements were in line with development capabilities and scalable by comparing them to technological dependencies and restrictions.

3. Confirmation and Validation

- Validation: User acceptability testing (UAT), iterative feedback loops, and prototype demonstrations were used to confirm requirements with stakeholders.

- Verification: Prior to execution, it was made sure that every demand matched the project's goals and satisfied the established acceptance criteria.

4. Repeated Fine Tuning

- Cycle: Refined requirements iteratively based on continuous input, new trends, and information obtained from stakeholders across the whole development process.
- Adaptation: Maintained flexibility in feature priority and development plan, while adapting to changing market conditions and user demands.

3.3 Use Case Modeling and Description

To comprehend how users engage with the InternBD platform and determine the precise functions that satisfy their demands, use case modeling is crucial. The main use cases for InternBD are shown in this section, along with a description of each situation to highlight the interactions and results.

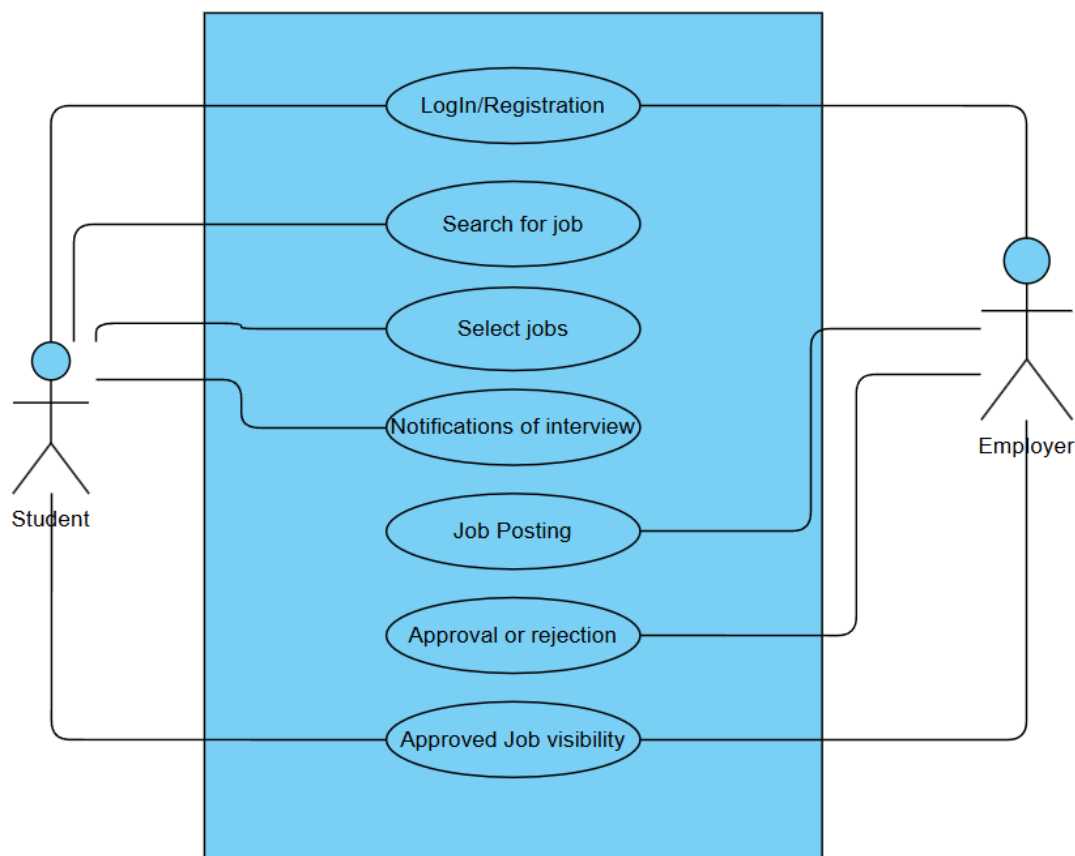


Figure 3.3.1: Use Case Diagram.

The use case modeling for InternBD shows important features and user journeys while offering an organized summary of how users engage with the platform. InternBD guarantees that it satisfies the many demands of students, graduates, professionals, and employers in promoting effective internship placements and career development by defining key use cases and outlining their processes.

3.4 Logical Data Model

The InternBD platform's logical data model functions as a guide for arranging and arranging data. To efficiently support the platform's features and activities, it specifies the entities, their properties, and the relationships between them.

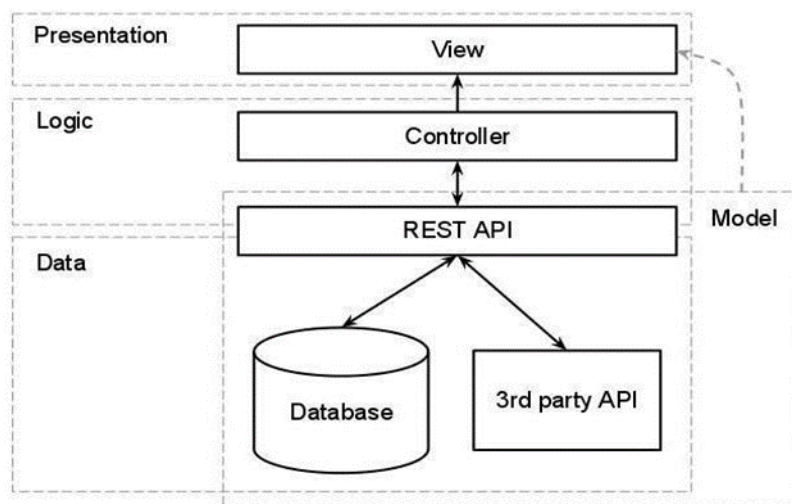


Figure 3.4.1: Logical Data Modeling.

3.5 Design Requirement

The technical standards and fundamental elements that will direct the creation and execution of InternBD are outlined in the design requirements. These specifications guarantee that the platform efficiently serves the interests of its stakeholders and users.

User Administration

- Description: Users ought to have the ability to create accounts, log in, edit personal data, and manage their profiles.
- Qualities:
 - User registration with distinction based on role (e.g., Employer, Professional, Graduate, Student)

- Safe methods for authorization and authentication
- Management of profiles (updating personal information, attaching files, controlling alerts)

Management of Internships

- Description: Users should be able to browse, search, and apply for internships; employers should be able to post internship openings.
- Qualities:
 - Employer dashboard for managing and posting internships
 - Options for advanced internship search and filtering
 - submittal of an application together with a CV and cover letter uploaded
 - Notifications and monitoring of application status
- Safety
 - transfer of data securely (HTTPS)
 - sensitive user data encryption (passwords, personal information)
 - To stop data breaches, regular security assessments and upgrades are necessary.
- Achievement
 - Web page loading speed and application responsiveness
 - Scalability to accommodate growing user and internship posting volumes
 - 99.9% uptime with little downtime and excellent availability
- Utilization
 - User experience (UX) and user interface (UI) design that is intuitive
 - adaptability to mobile devices for use on tablets and smartphones
 - Features that are accessible to people with impairments

CHAPTER 4

Design Specification

4.1 Front-end Design

The goal of InternBD's front-end design is to provide an aesthetically pleasing and intuitive user interface that makes tasks easier to navigate, expedites their completion, and enhances the overall user experience. The main design factors, elements, and guidelines for creating InternBD's front end are described in this section.

Design Considerations

- Search functions and navigation options are easy to use and understand.
- User profiles that can be customized, including choices for managing settings and preferences.
- For easy access on all platforms (desktops, tablets, and smartphones), used responsive design.
- Consistent use of the brand identity-aligned font, colors, and images.
- Whitespace and visual hierarchy are used to direct the user's attention and prioritize content.
- Branding components (logo, slogan) are included to strengthen brand identification.
- Adherence to the online accessibility guidelines (WCAG) for screen reader compatibility, keyboard navigation, and text contrast.
- Interface that is easy to operate on, with simple navigation and little mental strain.

Design Components

1. Homepage
 - An overview of the goals, benefits, and highlighted internship possibilities of InternBD.
 - Easy access to the login, search, and user registration features.
2. User Dashboard
 - Individualized dashboard showing application status, suggested internships, and user personal data.
 - Navigation for programs, stored searches, and profile settings management.
3. Internship Listings

- Extensive listings with sorting options and filters (industry, location, and duration).
- Comprehensive internship profiles that include prerequisites, descriptions, and directions for applying.

4. Application Process

- Application forms that are easy to use and provide spaces for resumes, cover letters, and other documents.
- Notifications and confirmation displays for changes and application submissions.

In order to provide a user-centric and captivating experience that supports the platform's objectives of matching professionals, graduates, and students with life-changing internship opportunities, InternBD's front-end design is essential. With an emphasis on visual design, usability, accessibility, and performance optimization, InternBD seeks to provide its users throughout Bangladesh a smooth and fulfilling experience.

4.2 Back-end Design

InternBD's back-end design prioritizes putting in place a scalable, secure, and effective architecture to serve the functionality and data management needs of the platform. The important factors, elements, and guidelines for creating InternBD's back end are described in this part.

Scalable Architecture

- For scalability and flexibility, I've used modular components or microservices.
- Both auto-scaling setups based on traffic patterns and horizontal scaling using load balancers.
- Partitioning or database sharding techniques to disperse data and maximize efficiency.

Data Management

- Relational databases for structured data management (users, internships, applications) (e.g., MySQL, PostgreSQL).
- Logs and user-generated material can be stored in NoSQL databases, such as MongoDB.
- For high availability and disaster recovery, data replication and synchronization are used.

Security and Authentication

- HTTPS uses the secure socket layer (SSL) to encrypt data as it is being transmitted.

- Protocols for secure authentication (such OAuth and JWT) are used for managing user sessions and logins.
- Permissions may be managed according to user roles (admin, employer, and user) using role-based access control (RBAC).

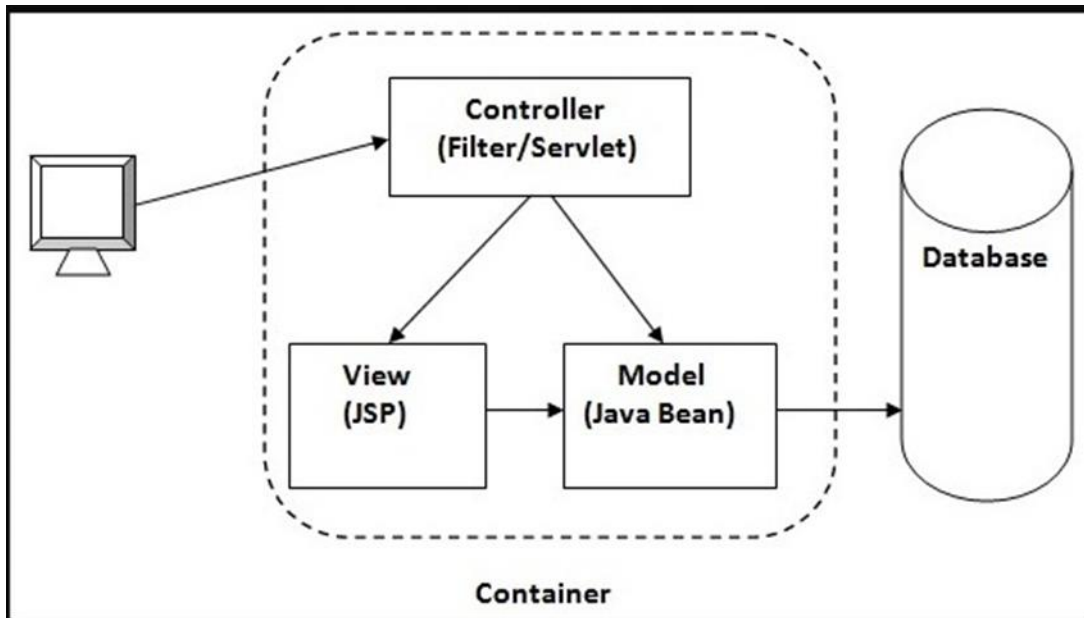


Figure 4.2.1: MVC Architecture

InternBD's back-end architecture provides solid data management, safe user interactions, and scalable platform expansion. Scalability, security, performance optimization, and integration capabilities are the main areas of focus for InternBD as it works to provide a dependable and effective internship platform that can accommodate the various demands of users in Bangladesh.

4.3 Interaction Design and User Experience (UX)

The goal of interaction design and user experience (UX) is to make user interactions with InternBD simple, easy to understand, and enjoyable. In order to improve the platform's usability, engagement, and happiness, the important factors, concepts, and elements are outlined in this part.

User-Centric Design

- To learn about the objectives, preferences, and pain points of users, do user research (interviews and surveys).

- To visualize and identify touchpoints for typical user interactions, create user personas and user journey maps.
- Usability testing is used in an iterative design process to confirm design choices and improve user flows.

Navigation and Information Architecture

- Breadcrumbs and navigation menus that are consistent allow for simple platform orientation.
- Internship postings that are filterable, categorized, and include choices for sorting.
- Use the sophisticated filters (location, industry, and duration) in the search feature to find appropriate internships quickly.

Visual Design and Branding

- Application of a color scheme, font, and images that adheres to brand standards.
- Use a visual hierarchy to direct users' attention and prioritize key information.
- For the best viewing and interacting experience across platforms (desktop, tablet, mobile), use responsive design.

To provide a user-centered and engaging experience on InternBD, interface design and user experience (UX) are essential. They enable smooth navigation, effective task fulfillment, and good user interactions. InternBD seeks to offer professionals, recent graduates, and students looking for internship opportunities in Bangladesh a meaningful and impactful platform via the integration of user research, intuitive design principles, and accessibility concerns.

4.4 Implementation Requirements

➤ Front End Technologies

- HTML
- CSS
- SCSS
- javascript
- react

➤ Back End Technologies

- javascript
- mysql
- express

➤ Tools

- XAMPP
- Wamp
- Web Browser
- Visual Studio Code (*IDE*)
- Node JS

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

The program's ability to store, manage, and retrieve data is made possible by those Database Tables, which also serve as a dependable basis for the functioning of the application and guarantee data integrity, security, and performance.

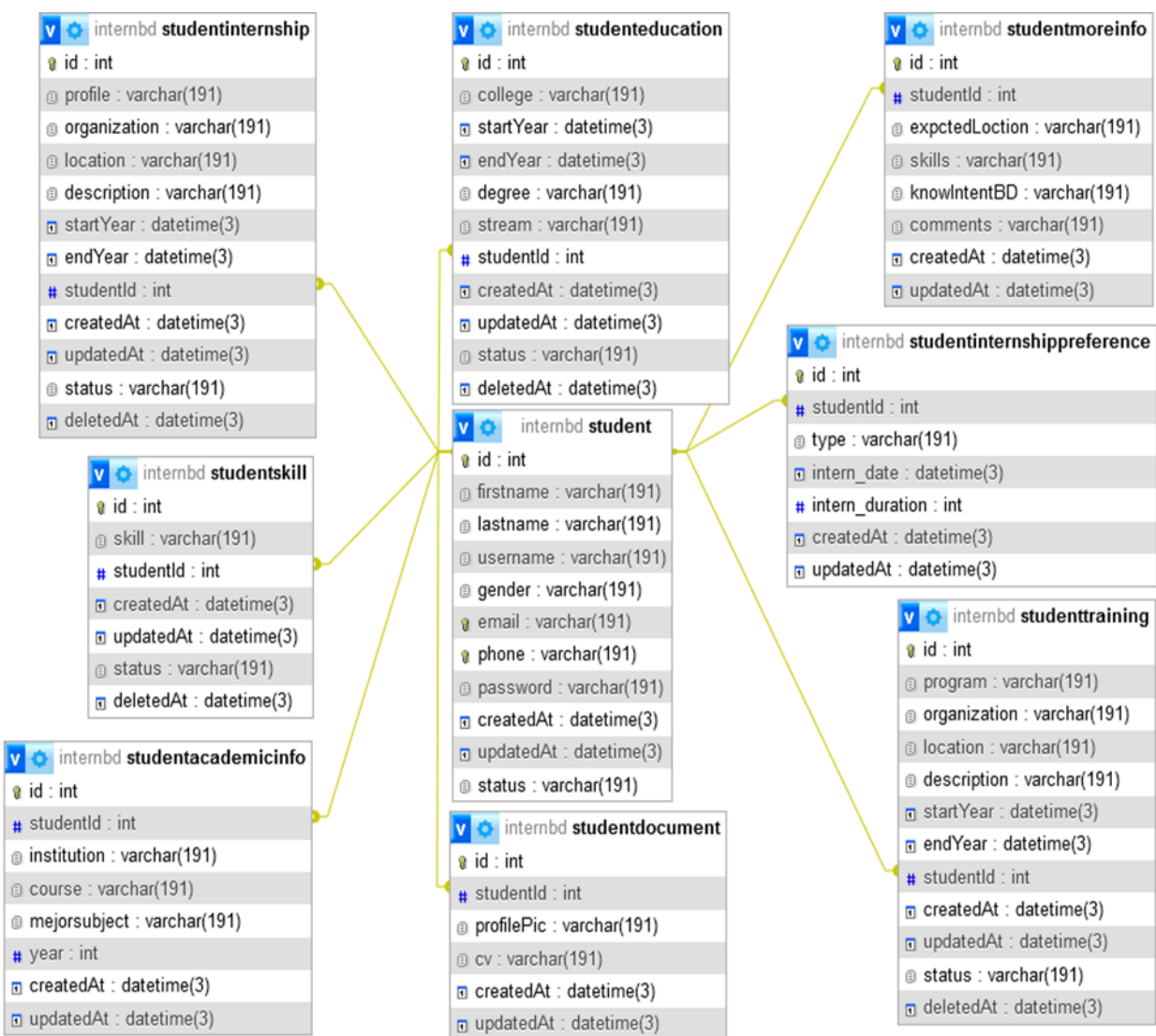


Figure 5.1.1: Database Architecture.

5.2 Implementation of Front-end Design

For professionals, recent grads, and students looking for internship opportunities, the InternBD front end is designed to be visually appealing, straightforward, and easy to use. Modern UI/UX elements are included into the design to improve accessibility and usability.

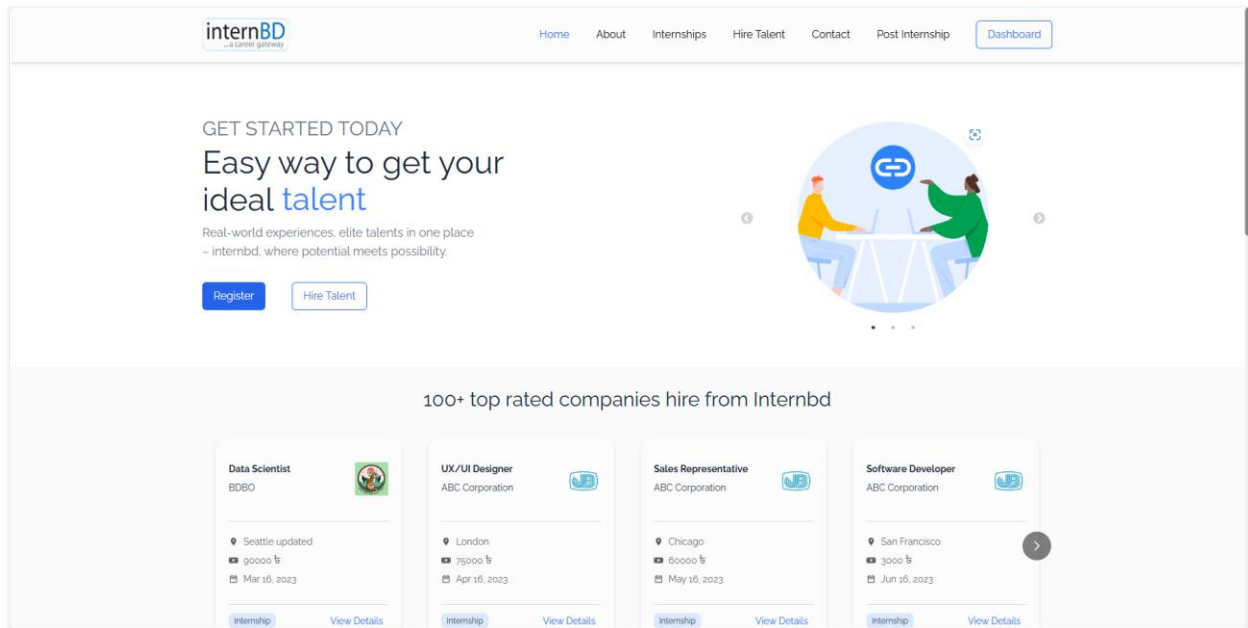


Figure 5.2.1: Landing Page Design.

This is the home page of InternBD where some options are shown like Register/Login, About, Hire Talent etc.

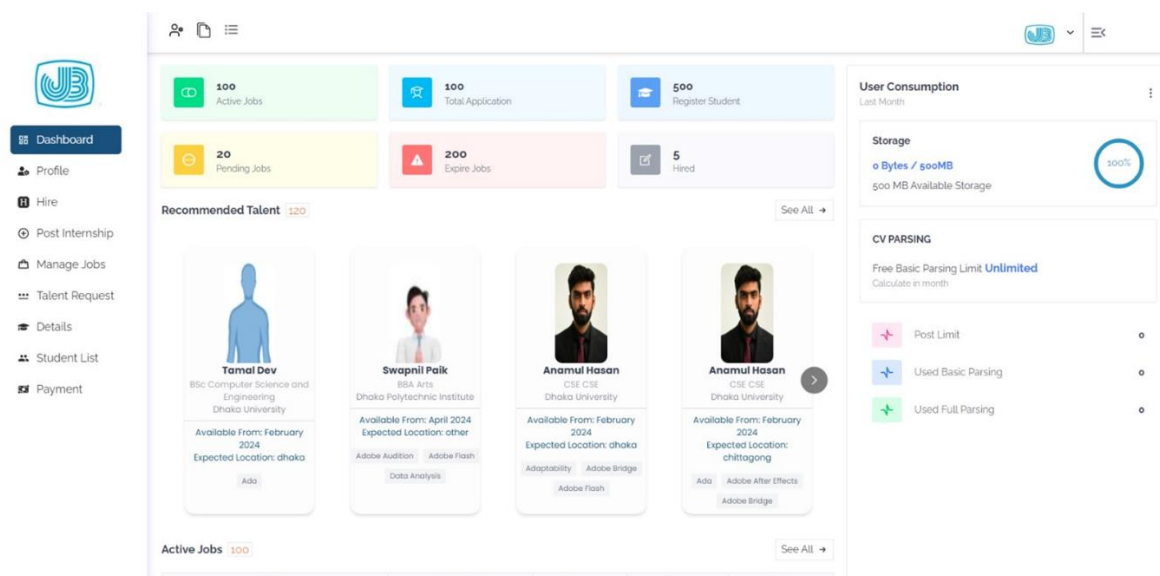


Figure 5.2.2: Company Dashboard Design.

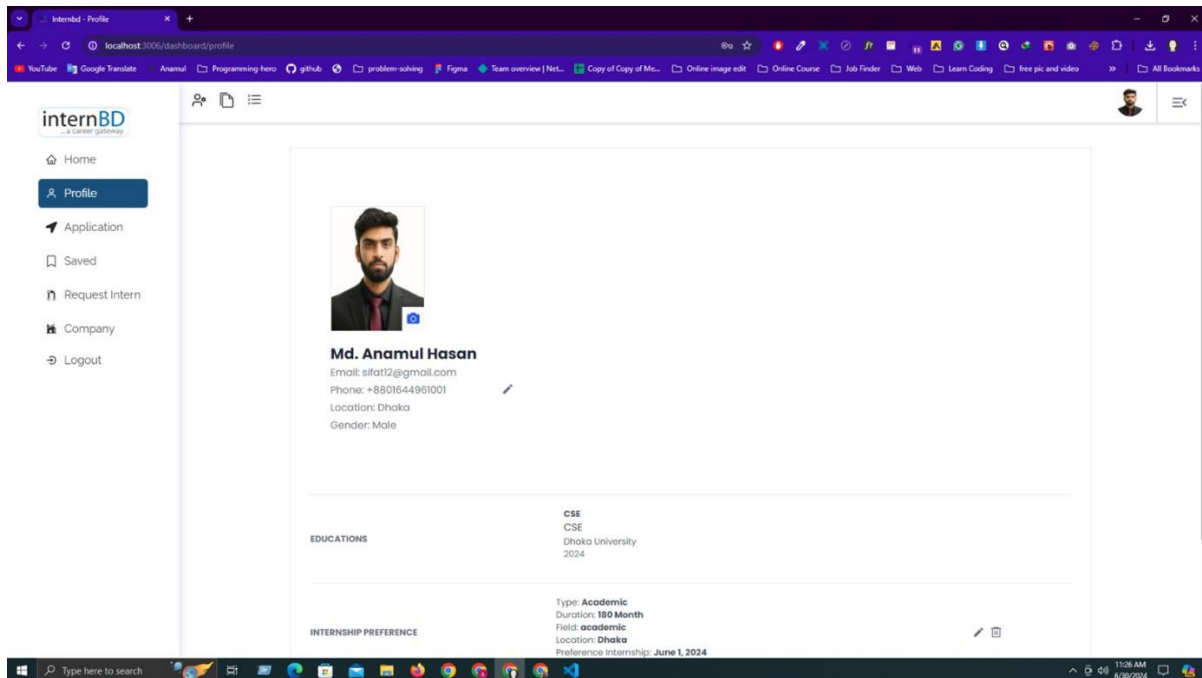


Figure 5.2.3: Student Profile Design

This is the student's profile page where we can see the personal information of a student about his/her name, e-mail, contact, qualifications etc.

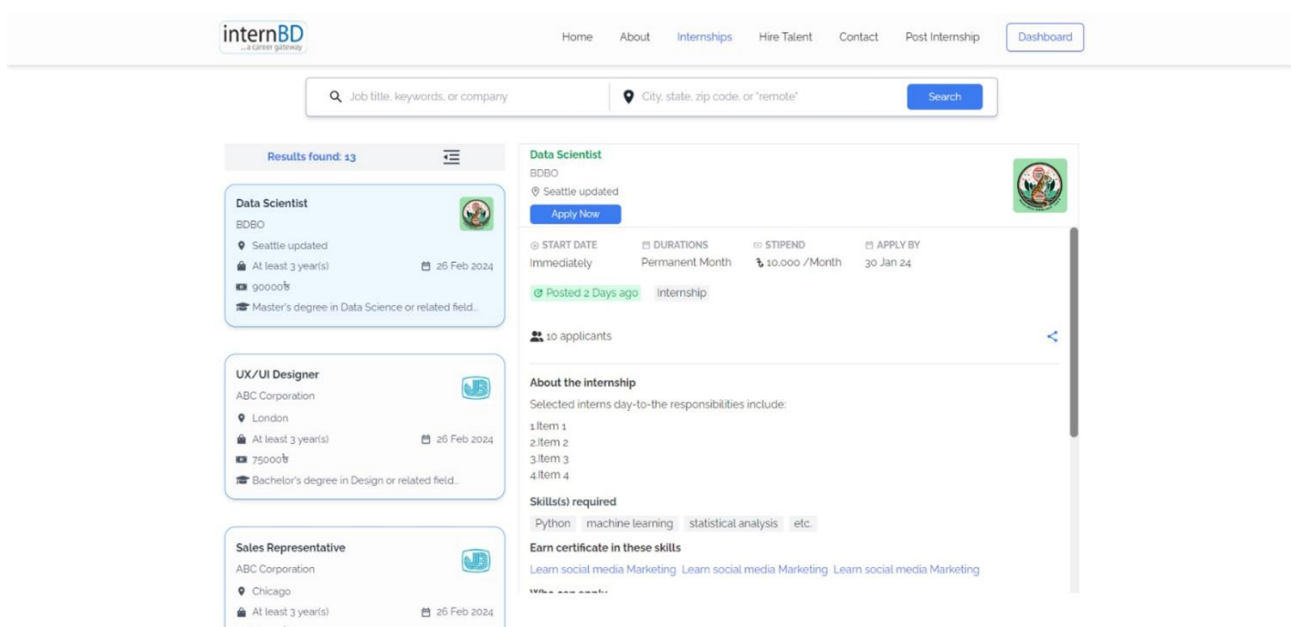


Figure 5.2.4: Consumer Dashboard Design.

This is the job post section where we can find jobs that are available and their descriptions. We can apply on this page on an available job posts.

5.3 Testing Implementation

Strategies for Testing

- Unit testing: Unit testing was implemented and carried out to confirm that each of InternBD's modules or components functions as intended.
- Integration testing made that the platform's many services and components interacted with one another without a hitch.
- System Testing: Confirmed that the integrated, whole platform met all of the criteria.
- User Acceptance Testing (UAT): Verified that the platform satisfied end users' requirements and expectations.

Test Types Performed

- Functional Testing: Confirmed that every platform feature functioned in accordance with the requirements.
- Applications submitted, internships searched, and user registration are a few examples.
- Non-Functional Testing: Assessed features including security, usability, and performance. Examples include security, compatibility, and load testing.
- Regression testing made sure that updates didn't negatively impact already-existing features.
- Testing for usability: Determined how simple it was for consumers to traverse

Plan and Carry Out Tests

- Goal: Ensuring that the features of the platform fulfilled both user expectations and specified criteria.
- Scope: Included all essential InternBD features and functionalities within its scope.
- Test Items: Application submission, employer dashboard, internship posting, search, and user registration.
- Test Environment: To guarantee responsiveness and compatibility, tests were run on a range of gadgets and browsers.
- Test Schedule: Unit, integration, system, and user acceptance testing were all conducted in stages.

Scenarios and Test Cases

- Test Case Design: For every functionality, thorough test cases were developed.
For instance:
- ID of Test Case: TC-001
- Test Synopsis: Enrollment of Users
- Prerequisites: The user is currently on the page for registration.
- Steps in the Test: 1. Provide accurate information. 2. Select "Register."
- Anticipated Outcome: The user registers and is sent to the dashboard.
- Expected Result: After registering, the user receives a link to the dashboard.

InternBD is a dependable, safe, and user-friendly platform that successfully satisfies the demands of its stakeholders thanks to the rigorous testing procedure. Key flaws were found and fixed during the testing process, producing a reliable end product.

5.4 Test Results and Reports

The system, integration, and unit testing were all successfully finished, according to the test reports and results for InternBD. They demonstrate robust functionality, compliance with security guidelines, and positive user feedback, ensuring a solid and excellent platform.

Test results and reports provide essential documentation of the testing process, encompassing the issues discovered, their impact on the software, and recommended improvements.

Test Type	Total Tests	Passed	Failed	Blocked	Remarks
Unit Testing	150	140	8	2	Minor issues found and fixed
Integration Testing	100	95	4	1	Some integration issues resolved
System Testing	120	110	7	3	Major functionalities tested successfully
User Acceptance Testing	50	45	3	2	Feedback incorporated from end-users
Regression Testing	80	75	4	1	Ensured new changes did not break existing features

CHAPTER 6

Impact on Society, Environment, and Sustainability

6.1 Impact on Society

1. Improving Workplace Prospects

- **Improved Access to Internships:** InternBD makes internship opportunities in a variety of industries more accessible to professionals, graduates, and students. This raises the likelihood of obtaining pertinent job experience that can result in long-term employment.
- **Filling the Knowledge Gap in the Workplace:** InternBD functions as a link between businesses, students, and educational institutions, bridging the knowledge gap between theoretical education and real-world professional competencies.

2. Workforce Readiness and Skill Development

- **Real-World Experience:** By facilitating real-world internships, InternBD users may enhance their readiness for the demands of the job market.
- **Enhancement of abilities:** Users may improve their employability and career prospects by honing their abilities through a variety of internship options.

3. Development of the Economy

- **Assisting Local Businesses:** InternBD assists Bangladesh's small and medium-sized companies (SMEs) by putting bright interns in contact with local businesses. These companies may become more innovative and productive as a result of our partnership.
- **Reducing Unemployment:** InternBD contributes to economic stability and growth by easing the transition from education to job and so lowering unemployment rates.

4. Empowering Youth

- **Encouraging Youth Career Guidance and assistance:** InternBD offers individualized tools and assistance to assist young people in making well-informed career decisions. A staff that is more competent and motivated may result from this empowerment.
- **Inclusion and Equal Opportunities:** By granting all users equal access to internship opportunities, the platform hopes to foster diversity and inclusion in the workplace.

5. Strengthening Education-Industry Collaboration

- **Collaborations with Educational Institutions:** InternBD works to connect internship programs with academic curriculum and learning outcomes by fostering collaborations with colleges and universities.
- **Industry-Driven Curriculum:** Employer feedback may assist educational institutions in customizing their curricula to fit industry demands, guaranteeing that graduates have current and relevant skills.

6. Community Development and Social Impact

- **Volunteer and Non-Profit Internships:** InternBD offers professional internships as well as volunteer and non-profit internships with community programs that support community development and social responsibility.
- **Increasing Awareness:** InternBD educates students and young professionals about career planning and development by emphasizing the value of internships and real-world experience.

7. Advancement in Technology and Digital Literacy

- **Encouraging Digital Literacy:** InternBD works to increase users' digital literacy and technological familiarity by promoting the use of digital platforms for career development.
- **Innovation and Technological Growth:** InternBD supports the general digital transformation and technological growth of society by utilizing technology to link users with possibilities.

Through improving job possibilities, assisting with skill development, and stimulating economic growth, InternBD has the potential to have a significant positive impact on society. Through empowering youth, fostering inclusion, and bolstering industry-education partnership, InternBD can help create a competent, motivated, and diverse workforce that will eventually benefit Bangladesh's economy and larger community.

6.2 Impact on the Environment

- **Virtual Internships:** InternBD lessens the need for daily commuting, which lowers the carbon emissions related to transportation by fostering virtual and remote internships. Significant reductions in greenhouse gas emissions may result from this, particularly in metropolitan areas.

- **Digital Processes:** By completely digitizing the application, selection, and onboarding procedures for internships, paper-based paperwork is not as necessary, which lessens wasteful paper use and its negative environmental effects.
- **Cloud-Based Solutions:** Making use of cloud-based hosting services might result in more environmentally friendly data management and storage procedures because they frequently make use of energy-efficient technology and renewable energy sources. Numerous cloud service companies are dedicated to using different green strategies to lessen their carbon impact.
- **Optimal Server Utilization:** By putting load balancing and auto-scaling into place, you can make sure that server resources are used effectively and cut down on energy waste.
- **Awareness and Education:** By providing tools and instructional information regarding environmental sustainability, InternBD may inspire employers and interns to embrace more environmentally friendly business practices.
- **Sustainable Internships:** InternBD may encourage users to participate in environmental activities and promote green professions by advertising internship opportunities with businesses and organizations that place a high priority on sustainability and environmental responsibility.
- **Remote Monitoring and Management:** Employers may further minimize carbon footprints by managing internships remotely, which eliminates the need for travel and physical presence.
- **Encouraging Green Policies:** In order to foster a sustainable corporate culture, InternBD can work with environmentally aware organizations and recognize those who have adopted green policies.

6.3 Ethical Aspects

- **Confidentiality:** It's imperative to protect users' private information, such as application histories, contact information, and resumes. To guarantee the confidentiality of user data, put strong data encryption and access control mechanisms in place.
- **Transparency:** Make sure users are aware of the regulations regarding data collection, usage, and sharing. Get users' express consent before gathering or disclosing their information to outside parties.
- **Non-Discrimination:** Make certain that the platform encourages equitable access to internship opportunities for people with disabilities, age, gender, race, and socioeconomic status. Put in place algorithms that guard against bias in recommendation and job matching systems.

- **Accessibility:** By following WCAG accessibility guidelines, create a platform that is usable by all users, including those with impairments.
- **Verification:** Establish a procedure for employers to undergo in order to confirm the legitimacy of internship advertisements and the observance of fair labor policies by businesses. This keeps exploitation at bay and guarantees that internships provide real educational opportunities.
- **Transparency:** Demand that employers give precise and understandable details on internship positions, such as duties, pay, and working conditions. Candidates are better able to make judgments when there is transparency.
- **Neutrality:** Ensure that neither the employer nor the user receives preferential treatment by upholding neutrality in the platform's activities. Steer clear of conflicts of interest that might jeopardize the impartiality and legitimacy of the platform.
- **Partnership Transparency:** Tell users of any connections or partnerships with organizations and businesses, making clear to them how these relationships affect the platform's services and operations.
- **Algorithmic Transparency:** provide certain that the algorithms that are used to match jobs and provide suggestions are clear and understandable. Steer clear of opaque techniques that might result in skewed results or unjust treatment.
- **Responsible AI:** Establish moral standards for the creation and application of AI and machine learning technologies, making sure that they are applied sensibly and do not support unfairness or prejudice.

It is essential to address these ethical issues if InternBD is to be implemented and run successfully. Through putting user privacy, fairness, responsibility, and openness first, InternBD can create a reliable and moral platform that helps Bangladeshi professionals, employers, graduates, and students. In addition to safeguarding users, these moral concerns improve the platform's standing and long-term viability.

6.4 Sustainability Plan

- **Sources of Income:**
 - **Subscription Fees:** Provide companies and users with premium membership options that come with extra features and perks.

- Employers should be charged a fee for publicizing job openings that include internships.
- Promotion: Make money by placing customized ads from training providers, educational institutions, and related companies.
- Partnerships and Sponsorships: Seek sponsorships and strategic alliances from firms, NGOs, and educational institutions.
- Finance and Investing:
 - Grants: Submit applications for grants from national and international agencies that work in the fields of technology, employment, and education.
 - Investors: Seek funding from impact, venture, and angel investors who are willing to support programs related to employment and education.
- Expense Control:
 - Operational Efficiency: To cut expenses, simplify operations. When it is feasible, automate procedures and make use of cloud-based technologies.
 - Implement scalable infrastructure so that it can accommodate expansion without incurring corresponding increases in expenditures.
- Sturdy Infrastructure: To guarantee constant service availability and performance, make investments in a scalable, dependable, and secure technical infrastructure.
- Regular upgrades: Apply user input and technology improvements to the platform to continuously enhance it through regular upgrades.
- Customer Service: Keep up a committed support staff to quickly resolve user questions and problems and guarantee a satisfying user experience.
- Green methods: To lessen carbon footprints, use eco-friendly methods include encouraging remote internships and cutting back on paper consumption through digital procedures.
- Sustainability Awareness: Inform people about sustainability issues and motivate them to adopt eco-friendly business practices. Emphasize your internships with environmental sustainability-focused organizations.

CHAPTER 7

Conclusion and Future Scope

7.1 Discussion and Conclusion

In Bangladesh, InternBD has been a successful platform that has transformed the internship landscape by improving the quality and accessibility of opportunities for professionals, graduates, and students. InternBD provides a varied range of options, including professional, virtual, and apprenticeship internships, by bridging the gap between academic institutions and the professional world through a centralized and user-friendly interface. Strategic planning and constant iteration based on user feedback have allowed InternBD to address these problems in spite of operational challenges in cultivating partnerships with businesses and educational institutions and technical challenges in guaranteeing strong cybersecurity and seamless user experiences. Prioritizing ethical factors such as equitable opportunity, user privacy, and openness has been crucial in establishing the platform's integrity and trustworthiness. Furthermore, by encouraging virtual internships and a digital-first strategy, InternBD further demonstrates its dedication to environmental sustainability by lowering carbon footprints and paper use. InternBD supports the overall economic and social development of Bangladesh in addition to helping individuals further their careers by promoting a culture of social justice and environmental responsibility. The platform is well-positioned for future developments, such as the use of blockchain technology for safe credential verification and artificial intelligence (AI) for tailored suggestions. It also has the potential to extend international internship possibilities through collaborations with other countries. By taking a forward-thinking strategy, InternBD sets a high bar for programs of a similar nature throughout the world and guarantees that it will remain an important and sustainable resource for future generations.

InternBD is proof of the revolutionary ability of technology to close the skills gap in the workforce. Through offering a thorough, easily accessible, and morally sound platform for internships, InternBD not only improves the possibilities for individual careers but also plays a part in the larger economic and social growth of Bangladesh. The platform will continue to be an important resource for next generations because of its dedication to sustainability, moral behavior, and ongoing development. The triumph of InternBD highlights the significance of inventive approaches in tackling urgent societal issues. The platform will surely be very important in determining how

internships and professional development are developed in Bangladesh in the future as it develops further.

7.2 Scope for Further Developments

Although InternBD has achieved great progress in improving internship possibilities in Bangladesh, there is still more room for growth in order to optimize its influence and breadth. Key areas for further improvements are as follows:

Integration of Advanced Technology:

- Use AI-driven algorithms to provide individualized internship suggestions based on user profiles, hobbies, and career objectives.
- Machine Learning: To assist customers keep ahead of industry demands, apply machine learning to assess market trends and forecast the need for particular abilities.
- Blockchain: Using blockchain technology, internship credentials may be securely and transparently verified, assuring validity and lowering fraud.

Worldwide Growth:

- Overseas collaborations: To offer possibilities for overseas internships, establish strategic collaborations with multinational corporations and academic institutions.
- Cross-Border Internships: Enable users to obtain foreign experience without having to leave their native country by facilitating remote cross-border internships.

Improved User Experience:

- Mobile Application: Create a mobile application that would enable users to follow applications, apply for internships, and get alerts while on the go, so offering them more accessibility and convenience.
- User Interface Refinements: Always work to improve the usability of the user interface by making it more intuitive and user-friendly.

Mechanisms for Improvement and Feedback

- Regular Surveys and performance analytics.

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Appendix A

Course Outcomes, Complex Engineering Problems (EP) and Complex Engineering Activities (EA) Addressing

Title: DESIGN AND DEVELOPMENT OF A WEB APPLICATION NAMED INTERNBD: EMPOWERING CAREERS

Student ID: 201-15-13643

CO Description for FYDP

CO	CO Descriptions	PO
Phase -I		
CO1	Integrate recently gained and previously acquired knowledge to identify a web-based internship problem for the Final Year Design Project (FYDP)	PO1
CO2	Analyze different aspects of the goals in designing a solution for this FYDP	PO2
CO3	Explore diverse problem domains through a literature review delineate the issues and establish this goals for the FYDP	PO4
CO4	Perform economic evaluation and cost estimation and employ suitable project management procedures throughout the development life cycle of the FYDP	PO11
Phase -II		
CO5	Design and develop technical solutions and system components or processes that meet specified requirements ensuring compliance with public health and safety standards as well as considering cultural socio-economic and environmental factors in this FYDP	PO3
CO6	Choose and apply appropriate methodologies resources and contemporary engineering and IT technologies to address complex engineering processes encompassing prediction and modeling while adhering to relevant constraints in this FYDP	PO5
CO7	Choose and apply appropriate methodologies resources and contemporary engineering and IT technologies to address complex engineering processes encompassing prediction and modeling while adhering to relevant constraints in this FYDP	PO6
CO8	Comprehend and evaluate the enduring sustainability and impact of professional engineering endeavors in addressing intricate engineering challenges within social and environmental frameworks.	PO7
CO9	Implement ethical principles and adhere to professional standards and norms in this FYDP	PO8
CO10	Capable of operating proficiently both individually and as a team member or leader across diverse teams and interdisciplinary settings in this FYDP.	PO9
CO11	Proficiently communicate with the engineering community and broader society regarding complex engineering endeavors including the ability to comprehend and generate comprehensive reports and design documentation as well as provide and receive clear instructions throughout this FYDP.	PO10

CO12	Acknowledge the importance of self-directed and life-long learning within the evolving landscape of technology and possess the readiness and capability to engage in lifelong learning endeavors.	PO12
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Addressing CO (1 to 8), Knowledge Profile (K), Attainment of Complex Engineering Problems (EP), and Attainment of Complex Engineering Activities (EA)

Addressing CO (1 to 8), Knowledge Profile (K), Attainment of Complex Engineering Problems (EP):

SN	EP Definition	Attainment	CO	Justification (with Knowledge Profile)	References
1.	EP1: Depth of Knowledge required	Yes	CO1, CO2, CO3, CO5, CO6, CO7 and CO8	The project covers Engineering Fundamentals (K3) through process modeling data design and front-end development showcasing strong engineering principles application. The project tackles Specialist Knowledge (K4) by integrating front-end and back-end design interaction design and user experience (UX) utilizing HTML CSS SCSS JQuery Vue JS for the front end and PHP frameworks like Laravel for the back end demonstrating expertise in web-based development.	Page no: [12,14-16,21], Section: [3.1, 3.3, 3.4, 5.1, 5.2] Page no: [17-24], Section: [4.1, 4.2, 4.3, 5.1, 5.2, 5.3]
				The project applies engineering practice & design (K5) by integrating design requirements like user interface, security, scalability, customization, compatibility, accessibility, and reliability, ensuring a robust and user-centric job management aligned with design principles. The project addresses engineering practice & technology (K6) by employing HTML, CSS, SCSS, JQuery, Vue JS, PHP, Laravel, MySQL, and Maria DB, emphasizing safe, scalable development with	Page no: [12-16], Section: [3.1, 3.3, 3.4, 3.5] Page no:

				Laravel's MVC framework and Composer. [17-20], Section: [4.1, 4.2, 4.3, 4.4]	
				The project covers research literature K8 by reviewing analogous platforms, UI/UX studies, security protocols, personalization algorithms, and industry trends, enabling informed decision-making for integrating innovative features into this system. Page no: [8-10], Section: [2.2, 2.3]	
2.	EP2: Range of Conflicting Requirements	Yes	CO2, and CO7	The project confronts EP-2 by addressing challenges like integrating diverse features while maintaining user experience, balancing security with functionality, scalability, real-time data synchronization, evolving industry standards, privacy regulations compliance, and implementing effective recommendation systems through careful planning, flexible development, and continuous adaptation. Page no: [11] Section: [2.4, 2.5]	
3.	EP3: Depth of analysis required	Yes	CO2, and CO6	The project tackles EP-3 by prioritizing solutions like contemporary front-end design for enhanced user experience and selecting Laravel for streamlined back-end development, addressing challenges such as user interaction optimization, platform accessibility, and scalability to provide a superior web-based system. Page no: [17-20], Section: [4.2, 4.3, 4.4]	
4.	EP4: Familiarity of Issues	Yes	CO8	The project fulfills EP-4 by integrating insights to development, optimizing processes, enhancing user experience, ensuring data security, and contributing to industry efficiency and effectiveness, bridging Computer Science and Engineering with the domain for impact beyond CSE boundaries. Page no: [8-11], Section: [2.2, 2.4]	

5.	EP5: Extends of application codes	No	CO5	N/A	N/A
6.	EP6: Extends of stakeholders involved and conflicting requirements	No	CO8	N/A	N/A
7.	EP7: Interdependence	Yes	CO5	The project meets CEP, EP-7 by addressing high-level problems across stages, ensuring data integrity, security, and performance in database implementation, optimizing user experience through intuitive front-end design, and conducting comprehensive testing.	Page no: [21-23], Section: [5.1, 5.2]

Addressing CO11 with Complex Engineering Activities (EA) [Some or all of the following]:

SN	EA Definition	Attainment	CO	Justification	References
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1.	EA1: Range of resources	Yes	CO11	The development of this system leverages a skilled team across domains, meticulous financial resource allocation for infrastructure, marketing, and development, and utilizes tools like XAMPP, Visual Studio Code, and various programming languages, frameworks, and databases for effective execution.	Page no: [20], Section: [4.4]
2.	EA2: Level of interaction	No		N/A	N/A
3.	EA3: Innovation	No		N/A	N/A
4.	EA4: Consequences for society and the environment	Yes		This projects emphasizes social impact and environmental sustainability by enhancing trip efficiency, promoting sustainable practices, and ensuring ethical considerations such as strong security, privacy, and transparent business practices, fostering societal well-being and environmental stewardship.	Page no: [26-31], Section: [6.1, 6.2, 6.4]

5.	EA-5: Familiarity	Yes		The Comparative Analysis for InternBD evaluates market competitors like Expedia and Booking.com to highlight InternBD's unique features, security, personalization, and customer engagement, enriching market understanding and informing strategic decisions for enhanced competitiveness and value proposition.	Page no: [7-10], Section: [2.1, 2.3]
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Addressing CO (4, 9, 10, and 12):

SN	COs	Attainment	Justification	References
1	CO4	Yes	The project captures CO4 by integrating financial management practices, including budgeting, resource allocation, cost management, and risk mitigation, ensuring efficient fund distribution, monitoring expenditures, and identifying optimization areas while maintaining quality.	Page no: [4-5], Section: [1.5]
2	CO9	Yes	The project upholds ethical practices by prioritizing user privacy, maintaining transparency in data usage, providing fair suggestions, respecting cultural sensitivities, and promoting accessibility, fostering trust, transparency, and integrity among stakeholders.	Page no: [28], Section: [6.3]
3	CO10	No	N/A	N/A
4	CO12	Yes	The project's implementation phase emphasizes lifelong learning through diverse testing protocols, automated frameworks, and CI/CD pipelines, ensuring ongoing improvement and adaptation to emerging tech trends, with results analysis refining the platform for enhanced effectiveness.	Page no: [21-25], Section: [5.1, 5.4]

Design and Development of a web application named InternBD:Empowering Careers

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